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ABSTRACT

Although the behavioral element of the Type A pattern has been identified, the cognitive component of the complex is less well understood. To examine the relationships of self focused attention, standards for performance, and performance evaluation to Type A behavior, 72 undergraduates were studied. Subjects were classified as Type A (N=36) or Type B (N=36) according to their scores on the student form of the Jenkins Activity Survey-Form T. Subjects completed a self-efficacy measure four times during a semester, and also completed the Self-Consciousness Scale, and the Frequency of Self-Reinforcement Attitudes Questionnaire. The results indicated that Type A students aspired to higher levels of academic performance, although actual performance was not different from Type B students. Type A students also demonstrated a greater concern with social appearance, a more intense internal focus, and a lower level of self-reinforcement compared to Type B subjects. A second sample of 32 Type A and 54 Type B undergraduates were administered the same measures, completing the self-efficacy measures twice in the same semester. The strong findings regarding self-efficacy in the first sample were not found in this second sample. The overall pattern of data suggest a self-critical Type A cognitive strategy which stresses high ideals, but fails to self-reinforce for performance below the ideal. (NRB)

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Self-Evaluation: The Type A Pattern

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Abstract

The cognitive component of the Type A complex was investigated in a classroom setting through three measures: (1) the self-efficacy mechanism, (2) the Self-Consciousness Scale, and (3) the Frequency of Self-Reinforcement Attitudes Questionnaire. The Type A students were found to aspire to higher levels of academic performance, although actual performance was not different from Type B students. Type As also demonstrated a greater concern with social appearance, a more intense internal focus, and a lower level of self-reinforcement compared to Type Bs. The findings are congruent with previous research which suggests a Type A evaluation strategy involving high aspirations and lack of satisfaction with present achievement.

Self-Evaluation

The Type A Pattern

The Type A behavior pattern, as originally defined, consists of "an action-emotion complex that can be observed in any person who is aggressively involved in a chronic, incessant struggle to achieve more and more in less and less time ..." (Friedman & Rosenman, 1974, p. 67). More specifically, the complex includes three core characteristic behaviors: aggressiveness and easily aroused hostility, a sense of time urgency, and a competitive achievement striving (Rosenman, 1978). The Type A construct has been usefully applied in the linking of these characteristic behaviors to the onset of physical illness. In particular, research has verified that the Type A pattern of behavior can be considered as an independent risk factor for coronary heart disease (see Cooper, Detre, & Weiss, 1981, for review).

Although the behavioral element of the Type A pattern has been identified and is clearly correlated with coronary heart disease, the cognitive component of the complex is less well understood. Because cognition may not only be a correlate of behavior, but may also mediate the relationship between stimulus and action, the role of cognition, especially with respect to the Type A's response to achievement-oriented tasks, is of particular interest.

In a recent review, Matthews (1982) noted the need for necessary research which can "identify how Type As (a) define themselves (b) conceptualize their domains of self-esteem and (c) engage in processes of self-evaluation" (p. 313). She discussed efforts to identify the psychological underpinnings of the

Type A pattern. Of particular relevance to the present work are those research approaches which have in common an interest in the strategy by which the Type A person monitors and evaluates his or her performance.

One such approach has attempted to pinpoint the role of self-referent thought as a moderator variable in Type A behavior. This strategy began with the research of Scherwitz, Berton, and Leventhal (1978), which noted the correspondence between self-referent statements and high levels of systolic blood pressure in Type As. A second research approach has directed its attention toward the assessment of A-B differences in the level of personal standards set for performance. As noted by Suls, Becker, and Mullen (1981), As indicate more interest than do Bs in performing well relative not only to others, but to the best possible performance. Subsequent research has suggested, although tentatively, that these two variables in combination--self-focused attention and very high standards--may be what spurs the Type A person to excessive activity (discussed in Matthews, 1982). Finally, it has also been suggested that As possess rather uncertain standards for evaluating the productivity which they so highly value (Matthews and Siegel, in press). They are more likely to check their own achievements against the performance of others, engaging in social comparison processes quite readily (Snow, 1978; Gastorf, Suls, & Sanders, 1980).

The present research has attempted to investigate the three variables discussed above--self-focused attention, standards for performance and performance evaluation--as they relate to Type A behavior. These were explored using established constructs. As such the project represented a construct

validation procedure--an attempt to define Type A within a network of related concepts. Measures included (1) private and public self-consciousness, and social anxiety (Fenigstein, Scheier, and Buss, 1975), (2) the self-efficacy mechanism (Bandura, 1977), and (3) frequency of self-reinforcement (Heiby, 1983).

The Self-Consciousness Scale (SCS; Fenigstein, et al., 1975) was developed as a measure of focus of attention. Three independent scales measure the subject's degree of inward focus (private self-consciousness), concern with public presentation (public self-consciousness), and anxiety regarding social interaction (social anxiety). If, as previous researchers (Dembroski and MacKougall, 1978) suggest, Type As engage more readily in social comparison as a basis for setting their own standards, the public self-consciousness scores of Type As should be notably elevated. Similarly, elevated private self-consciousness scores would indicate the self-focused attention suggested by Scherwitz, et al., (1978).

Self-efficacy is defined as a person's conviction or expectation that he or she can perform the behavior required in a specific situation (Bandura, 1982). In this study assessment of self-efficacy represented the expectations of the subject with respect to specific aspects of his or her academic performance. It is important to note that Bandura has empirically demonstrated a causal link between self-percepts of efficacy and later performance (1982). Thus, applied to the Type A complex, the concept of self-efficacy may clarify the relationship between the Type A cognitive appraisal of a situation and subsequent behavior. In line with previous related findings (Snow, 1978), it was predicted that Type A will present higher self-efficacy expectations than

will Type B, at least at the beginning of the academic semester. The pattern expected at the end of the semester was less clearly foreseen, as subjects' later self-efficacy ratings may reflect a consideration of available feedback.

The Frequency of Self-Reinforcement Attitudes Questionnaire (FSR) (Heiby, 1983) is a recently developed assessment tool designed to indicate a subject's level of control over the overt or covert positive reinforcement of his or her own behavior. Although conceptually the construct has been used to study depression, when viewed in another configuration the components of the response set measured may relate to Type A. A person with a low frequency of self-reinforcement typically holds aspirations beyond probable attainment, may not acknowledge success when it occurs and subsequently does not reward himself or herself. If the Type A individual lacks internal standards for evaluation (Matthews, 1983) and sets aspirations at a very high level, a low FSR might be predicted of the Type A response to achievement-oriented situations. Theoretically such an outcome may provide insight into the cognitive mediation between such situations and the subsequent Type A striving.

Study 1

Method

Subjects. The student form of the Jenkins Activity Survey--Form T (JAS) (Krantz, Glass, & Snyder, 1974) was initially administered to 215 undergraduates enrolled in the introductory psychology course at a midwestern liberal arts college. As noted below, students also completed a self-efficacy measure at

four points throughout the semester. The data of those 123 students who completed all measures were considered for the final sample. From these, JAS scores of 10 and above were designated as Type A (36); 36 students, scoring from 0-6, were designated as Type B. Thus the total sample included for final analysis was 72, which included 26 males and 46 females.[1]

Procedure. Subjects completed the self-efficacy measure at four points in the fall semester: (1) week 2, before any exams, (2) week 5, after 3 quizzes, (3) week 8, a week after midsemester exams, and (4) week 10, between midsemester and final exams. During week 10 subjects also completed the Self-Consciousness Scale and the JAS.

The first administration of the self-efficacy questionnaire was assumed to be at that point in the school year at which external standards for evaluation would be most ambiguous for subjects. This would seem to be especially true for the freshmen in the class (67% of students). At subsequent administrations, the students did benefit from feedback, as they were provided with grades immediately after each biweekly quiz.

Results

Self-Consciousness. In this sample, Type As scored higher than Bs on private and public self-consciousness, and lower than Bs on social anxiety. The mean difference for private self-consciousness was nonsignificant; the

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[1]Chi-square analyses indicated sex of subject and JAS score to be independent factors; similarly class rank and JAS were independent factors.

mean difference for public self-consciousness was significant (Ms = 20.92 vs. 17.36, t(70) = 3.36, p = .001 As vs. Bs, respectively). Social Anxiety mean differences were marginally significant (Ms = 11.00 vs. 13.03, t(70) = -1.96, p = .055).

Self-Efficacy. Self-efficacy is often measured (Bandura, 1982) through a three-component analysis: level, strength, and generality. "Generality" refers to a range of related behaviors which, in the typical self-efficacy paradigm, involves a hierarchy of discrete tasks of increasing difficulty, complexity, or some other dimension of the domain of behavior being tested. "Level" indicates the degree of mastery in performance of which the individual feels capable for each of these tasks, and "strength" refers to the person's confidence that he or she can perform the behaviors at the levels indicated. In the present study, subjects indicated their expectations about personal performance for each of six academic tasks (see Table 1). These tasks ranged from the immediately upcoming course quiz to the less salient and broader task of completing a college degree. Subjects also indicated the level of the expected performance on each academic task, and their confidence about these performance judgments.

T-tests were used to compare self-efficacy ratings of Type A versus Type B subjects.

On the first questionnaire, as predicted, Type A subjects compared to Type B reported level of self-efficacy at a higher point for each of the six academic task measures. Type As expected to do better on their first quiz than

did Type Bs. (M = 10.03 vs. M = 9.08, respectively, $t(70) = 2.51$, $p = .01$); similarly, Type As expected better performance of themselves on the upcoming midterm (M = 10.00 vs. m = 9.06, $t(70) = 2.53$, $p = .01$); for a final grade (Ms = 10.28 vs. 9.22 $t(70) = 2.77$, $p = .01$); in another psychology course (Ms = 9.44 vs. 8.33, $t(70) = 2.97$, $p = .00$); overall in their classes (Ms = 10.00 vs. 9.00, $t(70) = 3.11$, $p = .00$) and in likelihood of receiving a college degree (Ms = 7.23 vs. 6.61, $t(70) = 2.16$, $p = .03$).

On the first questionnaire, the strength (or confidence) responses reported by Type As were also consistently higher than those of Type Bs, and for two of the six measures were significantly higher. Confidence for achieving the grade expected on the upcoming quiz was significantly higher for Type As than Bs (M = 6.39 vs. M = 5.75, $t(70) = 2.32$, $p = .02$); also the confidence level for achieving an expected grade point overall in courses was higher for Type As (Ms = 7.19 vs. 6.36, $t(70) = 2.08$, $p = .04$).

In comparing level of self-efficacy at the three later administrations of the questionnaire, these A-B differences largely disappear. At the second administration (week 5), no significant differences were apparent between As and Bs in their expected performances on the upcoming course quiz, or for midterm or final grades. Marginally significant differences are found between As and Bs in their performance expectations for another psychology course (M = 9.17 vs. M = 8.39, respectively, $t(70) = 1.98$, $p = .05$) and for overall grade performance in other courses (Ms = 9.33 vs. 8.61, $t(70) = 1.83$, $p = .07$). The confidence level of the As was marginally significant and higher than Bs

for the psychology course (Ms = 7.17 vs. 6.50, t (70) = 1.84, p = .07) and significant at .01 level for overall grade expectations (Ms = 7.25 vs. 6.39, t (70) = 2.45). Confidence of As was also higher regarding their judgments about completing a degree (Ms = 8.86 vs. 8.08, t (70) = 1.99, p = .05.

By the third questionnaire administration (week 8) all significant differences in A-B self-efficacy had disappeared. The final questionnaire, at week 10, showed an A-B difference on the measure of level of self-efficacy for predicted success overall in classes. In this case As reported a greater level of self-efficacy (M = 9.72 vs. M = 9.02, t (70) = 2.08, p = .04). Although As reported typically higher levels of confidence in their judgments on both questionnaires 3 and 4, the only significant difference was on the final measure--confidence regarding the subjects' predictions of completing a college degree (M = 9.22 vs. 8.44, t (70) = 2.09, p = .04, As vs. Bs., respectively.

It is useful to examine mean scores of A and B self-efficacy responses, in order to determine the pattern of change occurring across time. In general, comparing first to final measures of predicted level of performance, Bs tended to remain stable or to raise the level of performance expected. For none of the six tasks did mean level B scores decrease. As proved to be a bit more variable--showing an overall drop in mean grade predictions for midterm, final, and overall grade expectations, remaining stable on expectations for quiz and

degree completion, and increasing expectations for performance in another psychology course.

A consistent pattern emerged regarding confidence ratings. Regardless of where the subjects were reporting level of performance expectations, their confidence about those judgments increased overall across time. This was true for all six of the tasks measured, and for both A and B subjects.

Grades. An examination of mean subject grades after the initial quiz, at midterm, and at the final exam suggested that subjects, As and Bs alike, on the average performed below their expectations. Despite differential expectations for performance the subject mean grades showed no significant differences between Type As and Bs.

Additional Measures. No differences were reported between As and Bs in reported hours of studying, time devoted to class work, or the perceived accuracy of their grades in reflecting class performance.

Study 2

Method

Subjects. From an initial pool of 221 introductory psychology students, 155 subjects with complete data were considered for inclusion in the study. Final selection, as in the previous study, was made on the basis of JAS scores. Thirty-two subjects were identified as Type A, scoring at 10 and above; 54 subjects scored 0-6, and were designated as Type B. Thus, the final sample included 86 subjects, 30 male and 56 female.[2]

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[2]Chi-squared analyses again indicated sex of subject and JAS score to be independent factors, similarly class rank and JAS were independent factors.

Procedure. Subjects completed the self-efficacy measure at two points in the fall semester: (1) week 2, and (2) week 10. The SCS, JAS, and SRS were also completed at week 10.

Results

Self-Consciousness. As in Study 1, Type As scored higher than Bs on private and public self-consciousness, and lower than Bs on social anxiety. The mean difference for private self-consciousness was significant (Ms = 26.03 vs. 23.57, t (84) = 2.40, p = .02); differences on public self-consciousness and social anxiety were nonsignificant.

Self-Efficacy. T-tests compared self-efficacy ratings of Type A versus Type B subjects. In contrast to the results in Study 1, no significant differences between As and Bs were indicated in level of self-efficacy for any of the six behaviors measured at the first administration of the questionnaire; at the second administration, a difference was indicated between groups on expected performance in a future psychology course (Ms = 9.34 vs. 8.56, t (84) = 2.41, p = .02, As vs. Bs, respectively). With this last exception, the mean scores of efficacy level for this sample of subjects, compared to Study 1, indicated lower expectations for As which more closely approximated the Bs scores in both samples. Those mean scores of the groups were in the predicted direction (see Table 2).

The certainty scores in this sample showed consistency in being higher for As; however differences were limited to marginally significant p values. On questionnaire 1, As were more confident of their judgments on the items regarding midterm score, overall grade point and college degree (p values =

.05, .08, and .06, respectively. Even these marginally significant differences were absent on the second questionnaire responses.

Grades. As in Study 1, subjects performed below their own expectations in the course. There were no significant differences between As and Bs in mean grades for the initial quiz, at the midterm, or for final grades. It is worthy though, that on the whole, this sample of students received higher midterm and final grades than those in Study 1. The average midterm score quiz for Study 1 was a "C+", compared to a "C" for Study 2; the mean final grade for Study 1 subjects was a B versus a C+ for Study 2.

Self-Reinforcement. As predicted, SRS scores for As were lower than those for Bs (Ms = 18.47 vs. 20.33, As vs. Bs, respectively, t (84) = -2.20, p = .03).

Additional Measures. Again, no differences were reported between As and Bs in reported hours of studying, time devoted to class work, or the perceived accuracy of subjects' grades in reflecting class performance.

Discussion

Three variables relevant to the Type A cognitive process were investigated with the present project— self-consciousness, self-efficacy, and self reinforcement. Initial hypotheses regarding each were supported, and results offer insight into the cognitive component of the Type A pattern. The overall pattern of data suggests a self-critical Type A cognitive strategy which stresses high ideals, but fails to self-reinforce for performance less than the ideal. The lack of reinforcement may serve

to fuel the continued sense of urgency and achievement striving typical of pattern A. The next experimental step would appear to be a linkage of this cognitive strategy to the subsequent behavior.

An unexplained facet of the data is the contrast between the strong findings regarding self-efficacy in Study 1, and the puzzling lack of such strong differences in the second sample. Although the means were in the predicted direction, the absence of a strong effect may point to methodological or measurement error, (a problem addressed by Matthews, 1982), or to gaps in our knowledge about coronary-prone behavior. Regarding the latter, a relevant consideration is the distribution of As and Bs in the experimental setting. Past research has set the precedent for defining the A/B categories; this scoring technique, as used in the present studies, has fostered the convenient grouping of subjects into relatively proportionate thirds--As, Bs, and mid-range scorers. In the final sample of the present project, however, the disproportionate number of Bs (35% of sample 2), along with reduced proportions of As (21% of sample 2), may have been a factor in the less striking outcomes of self-efficacy measures. As discussed by Matthews (1982), a competitive situation is considered a prerequisite for the demonstration of Type A behavior, and likewise perhaps the development of the Pattern A mode of cognition. Also, As are recognized as engaging in social comparison processes more readily than Bs, and suspected of monitoring the behavior of others quite closely. It is not unreasonable to assume that, to the

vigilant As, the increased percentage of Bs provided a less competitive classroom atmosphere. In a related vein, Bandura's discussion of self-efficacy notes that "knowledge of personal efficacy is not unrelated to perceived group efficacy." (1982, p. 143) Persons base their notions of personal self-efficacy not only on actual experience, but on the comments and information offered by others.

Finally, an additional puzzle of Study 1 is the lack of maintained self-efficacy differences between As and Bs beyond the first measure. The continued investigation of this Type A - efficacy link, and its change across time, may clarify the relationship between the Type A cognitive appraisal of a situation and subsequent behavioral responses. What the present data offer is a challenge to future research to clarify the role of the situation (specifically the interaction of As and Bs and the impact of performance feedback) in the development of coronary prone behavior.

Table 1

Mean Self-Efficacy Scores: Level of Performance

Predicted Performance	Questionnaire 1 (week 1)		Questionnaire 4 (week 10)	
	Type A	Type B	Type A	Type B
1. Upcoming quiz	10.03	9.08*	10.05	9.78
2. Midterm exam	10.00	9.05*	9.42	9.14
3. Final grade	10.28	9.22*	9.69	9.44
4. Future Psychology Class	9.44	8.33*	9.67	8.92
5. Grade Point Average	10.00	9.00*	9.72	9.03*
6. Prospects for Completing Degree	7.28	6.61*	7.31	6.69

*p < .05

Note: Items 1-5 were rated on a 12-point scale of grade points, 1 = F, 12 = A. Item 6 was rated on an 8-point scale, 1 = not likely, 8 = very likely.

Note: Table 1 represents a partial summary of data from Study 1.

Table 2

Mean Self-Efficacy Scores: Level of Performance

Predicted Performance	Questionnaire 1 (week 1)		Questionnaire 2 (week 10)	
	Type A	Type B	Type A	Type B
1. Upcoming quiz	9.25	9.24	9.00	8.80
2. Midterm exam	9.31	9.09	7.81	8.07
3. Final grade	9.66	9.44	8.75	8.44
4. Future Psychology Class	9.53	9.19	9.34	8.56*
5. Grade Point Average	9.69	9.33	9.25	8.89
6. Prospects for Completing Degree	7.13	6.78	6.81	6.75

*p < .05

Note: Items 1-5 were rated on a 12-point scale of grade points, 1 = F, 12 = A. Item 6 was rated on an 8-point scale, 1 = not likely, 8 = very likely.

Note: Table 2 represents a partial summary of data from Study 2.

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